

CLAIMS

1. An improved method for the metered dispensation of a particulate welding material which comprises :
 - (a) establishing a primary flow of such material through a first hopper and a second hopper in series;
 - 5 (b) extracting from such primary flow through the second hopper a determined secondary flow of such material; and
 - (c) recycling such secondary flow to such primary flow in such a manner that a metered dispensation of such material is
10 obtained,wherein the improvement comprises adjusting the primary flow through the first hopper in such a manner that a desired size range of particulate material is delivered.
2. A method as claimed in claim 1, wherein the adjustment of primary flow
15 is achieved by restricting to a predetermined extent the flow of particulate material from the first hopper.
3. A method as claimed in claim 1 or claim 2, wherein the recycled flow of particulate welding material is passed to a preliminary hopper in flow connection with the first hopper in which preliminary hopper fine
20 material is passed upwardly to a collection chamber and coarse material is passed downwardly to the first hopper.
4. An alternative method for the metered dispensation of a particular welding material which comprises passing the determined second flow
25 in part to a reservoir for the particulate welding material from which

reservoir the particulate welding material may be recycled at selected intervals into the first hopper.

5. An apparatus for the metered dispensation of a particulate welding material which comprises :

- 5 (a) a first hopper having a first inlet means and a first outlet means;
- (b) a second hopper in flow connection with the first hopper and having a second inlet means and a second outlet means;
- (c) a take-off means in combination with the second hopper and
10 adapted to remove a selected amount of particulate material from a flow of such material through the first and second
hoppers; and
- (d) recycling means adapted to return a desired amount of particulate material to the first hopper,

15 wherein a restrictor means is inserted in the first outlet means to restrict the flow of particulate material to a predetermined extent.

6. An apparatus is claimed in claim 5, wherein the restrictor means comprises one or more of a range of collets which is/are inserted into the bottom of the conical discharge chute leading from the first hopper
20 to alter the Venturi effect controlling the rate of exit of the particulate material from the first hopper.

7. An apparatus as claimed in claim 5, wherein a deflector means is inserted into a preliminary hopper in flow connection with the first hopper to ensure that a relatively high proportion of medium to large
25 size particulate material is passed to the first hopper.

8. An apparatus as claimed in claim 7 wherein a screening filter is attached to an out-take from the preliminary hopper to ensure that only fine dust is extracted from the system.
9. An apparatus for the dispensation of a particulate welding material which comprises :
- 5 (a) a first hopper having a first inlet means and a first outlet means;
- (b) a second hopper in flow connection with the first hopper and having a second inlet means and a second outlet means;
- 10 (c) a take-off means in combination with the second hopper adapted to remove a selected amount of particulate welding material from a flow of such material through the first and second hopper;
- (c) a reservoir of particulate welding material from the take-off means from which such material may be recycled at selected intervals into the first hopper.
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10. A welding apparatus in combination with an apparatus as claimed in claim 5 or claim 9 wherein a welding injection tube connected to the outlet from a second hopper according to the invention is located at an optimum angle to the horizontal whereby:
- 20 (a) the particulate welding material drops behind the flash area caused by ignition of a welding wire;
- and
- (b) the particulate welding material does not drop so far from the flash area that a weld pool is not formed.
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